

A Very Brief Introduction on the SWGDM Recommendations on Reporting Likelihood Ratios

Eugene Y. Lien

Nuclear DNA Technical Leader,
NYC-OCME, Department of Forensic Biology



Disclaimer

- I am a SWGDAM Member, but I am only here to present the major points on the “Recommendations of the SWGDAM Ad Hoc Working Group on Genotyping Results Reported as Likelihood Ratios.”
- Any opinions expressed are solely mine and do not necessarily represent the opinions of SWGDAM.
- I am not speaking on behalf of SWGDAM.



**RECOMMENDATIONS
OF THE
SWGAM AD HOC WORKING GROUP ON
GENOTYPING RESULTS REPORTED AS LIKELIHOOD RATIOS**

Given the increasing usage and interest in probabilistic genotyping among forensic DNA testing laboratories, the Scientific Working Group on DNA Analysis Methods (SWGAM) empaneled an Ad Hoc Working Group to inform on matters relating to the reporting of likelihood ratios (*LRs*). This group was comprised of experts in the application of statistical principles to forensic evidence and forensic practitioners with expertise in the interpretation of mixed DNA specimens and probabilistic genotyping. Four paramount topics were evaluated by the Working Group

Full text on this recommendation (including standards, guidelines, and other recommendations) can be found on <http://www.swgdam.org>

SWGDM Recommendations

Recommendation 1.1: The numerical value for a likelihood ratio shall be reported as a quantitative estimate of statistical weight for both Hp- and Hd-supporting proposition pairs, with the exception of results deemed exclusionary as discussed in Recommendation 2.1.

- The value of the *LR* must be reported (with the exception of exclusions).
- If multiple values are calculated (e.g., different population groups), and a lab opts to report a single value, the lowest should be reported.

SWGDM Recommendations

Recommendation 1.2: If a lab opts for a verbal scale, use the SWGDAM recommended scale.

<i>LR for H_p Support and 1/LR for H_d Support</i>	<i>Verbal Qualifier</i>
1	Uninformative
2 – 99	Limited Support
100 – 9,999	Moderate Support
10,000 – 999,999	Strong Support
$\geq 1,000,000$	Very Strong Support

- The numerical ranges used in this scale were complemented by examination of empirical data.
- The terms chosen for the scale were arrived at through discussions within the working group.

SWGDM Recommendations

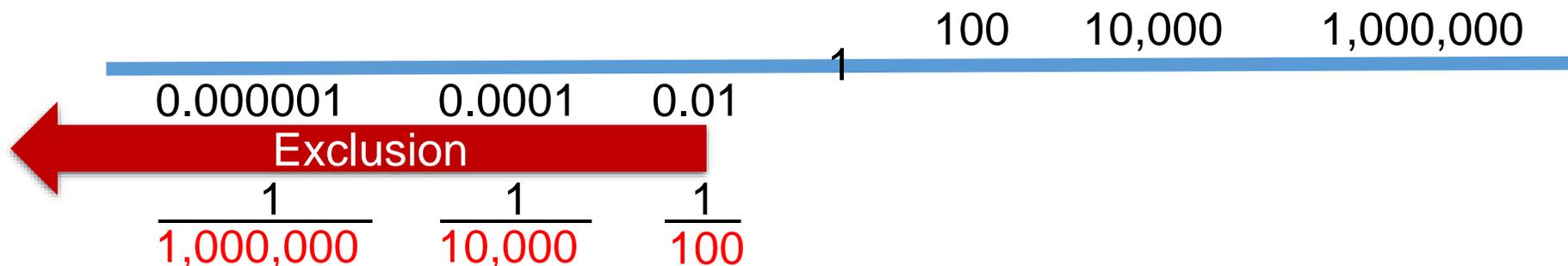
Recommendation 2.1: A laboratory may establish a likelihood ratio value below which an individual may be excluded as a possible contributor rather than reporting a likelihood ratio value that supports the defense proposition.

- As a pragmatic approach to reporting *LRs* that support the exclusionary proposition, laboratories may opt to report *LRs* below a certain value as “exclusions”.

SWGDM Recommendations

Recommendation 2.1: is there a point at which it is reasonable to say the POI is excluded?

- e.g., Conceptually, strong support for H_d suggests exclusion
- A laboratory may opt to define an upper bound (e.g., at most 1/100) below which LRs are reported as exclusions.



SWGDM Recommendations

Recommendation 3.1: A likelihood ratio appropriately conveys the weight of the evidence and should not be reported as inconclusive based on its magnitude.

- *LRs* measure the competing weights of the probabilities of the evidence under two mutually exclusive explanations of the evidence. No *LR* is inconclusive simply based its value.

This topic generated considerable discussion

Please visit www.swgdam.org > Updates > Webinar!!

“New SWGDAM Recommendations on Communicating Likelihood Ratios”

As the U.S. is transitioning toward probabilistic genotyping as a means of interpreting forensic DNA typing results and assigning statistical weight, the Scientific Working Group on DNA Analysis Methods (SWGDAM) has published recommendations to promote consistency among laboratories in the communication of likelihood ratios. In this webinar, members of the SWGDAM working group will introduce the recommendations and impart the historical perspective, reasoning and empirical data considered in their development.

Speakers:

Tamyra Moretti – FBI

Jerrilyn Conway –FBI

Shawn Montpetit – San Diego PD

Steven Myers – CaDOJ

Original live webinar took place October 18, 2018

Duration: 2 hour(s)

Funding for this Forensic Technology Center of Excellence event has been provided by the National Institute of Justice.